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The **previous four constructions started with a pair of parallel lines**, then constructed figures based on these. Rectangles and squares need a pair of parallel lines and a right angle (or so). Therefore, rather than constructing the lines by duplicating an arbitrary angle, **we will use right angles to construct the parallel lines**.

Start by constructing a line segment. On the segment, mark a point that will be the first vertex. Don't place this point near the end of the segment.

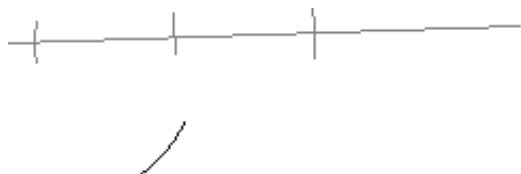


Next, **construct a line perpendicular to the first line** through this point. Again, this was something we learned in quarter 1, but we will review it here.

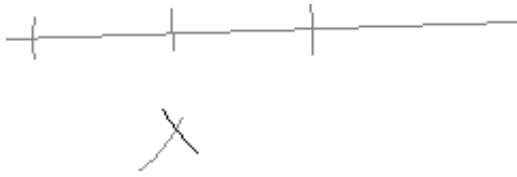
Start by placing the stationary end of your compass at the vertex. Open it so that the span is not greater than the distance from the vertex to the end of the segment. Mark this distance on either side of the vertex, as shown.



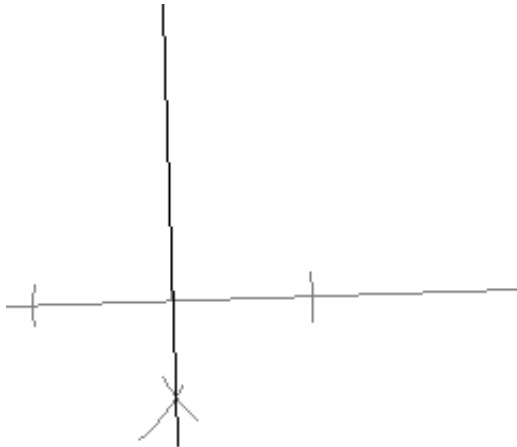
Move the stationary end of the compass to one of these intersections. Open the span a bit wider and construct an arc below the segment.



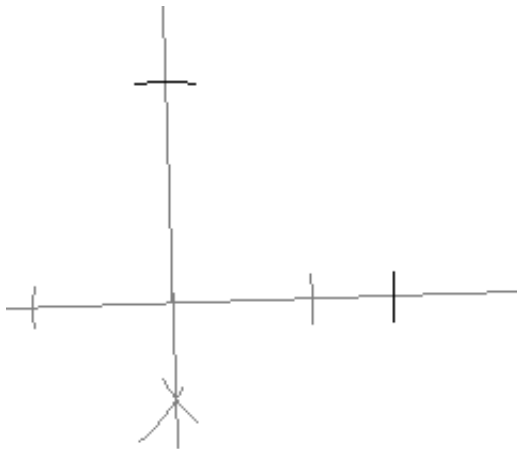
Without changing the span of the compass, move the stationary end to the other intersection, and construct the arc that intersects the first.



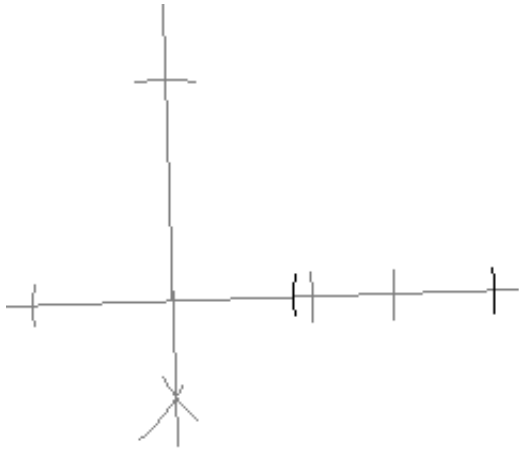
Now, using your straight edge, construct the line between this intersection and the vertex. This line is perpendicular to the first line.



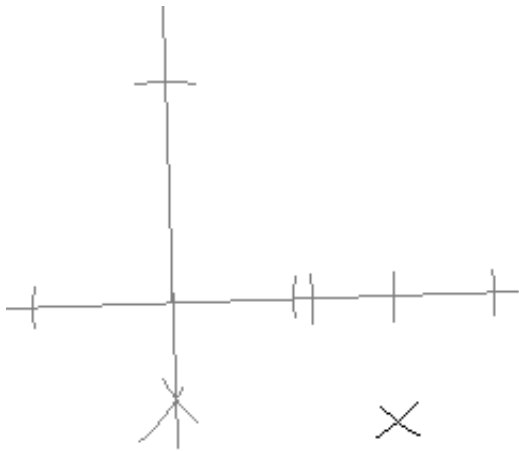
Open the span of your compass to the length you want each side to be. Place the stationary end of your compass on the vertex and mark off this distance along both lines.



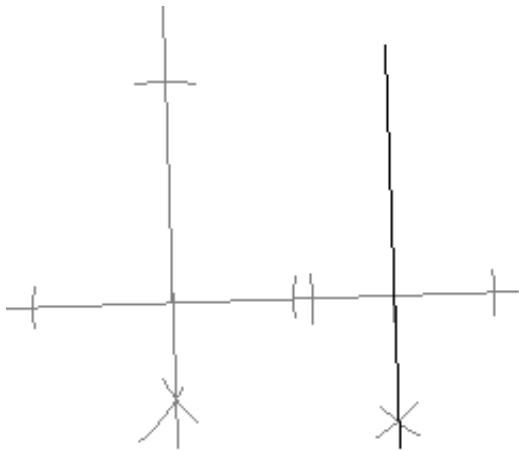
Now, through one of these points, construct another perpendicular. It shouldn't matter which point you use. I am going to use the bottom vertex since I didn't leave much space along the other line. Start by drawing arcs on either side of the vertex.



Then draw the arcs below the vertex.

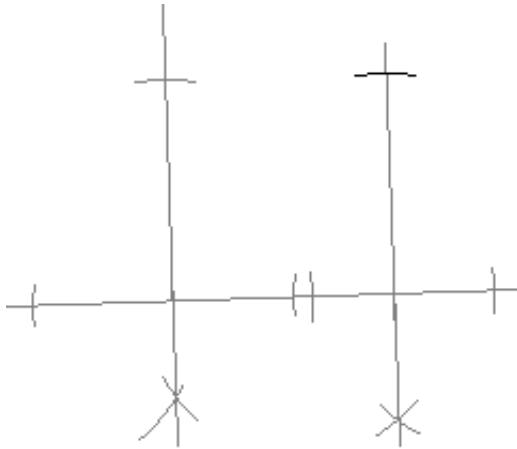


Next connect the intersection with the vertex.

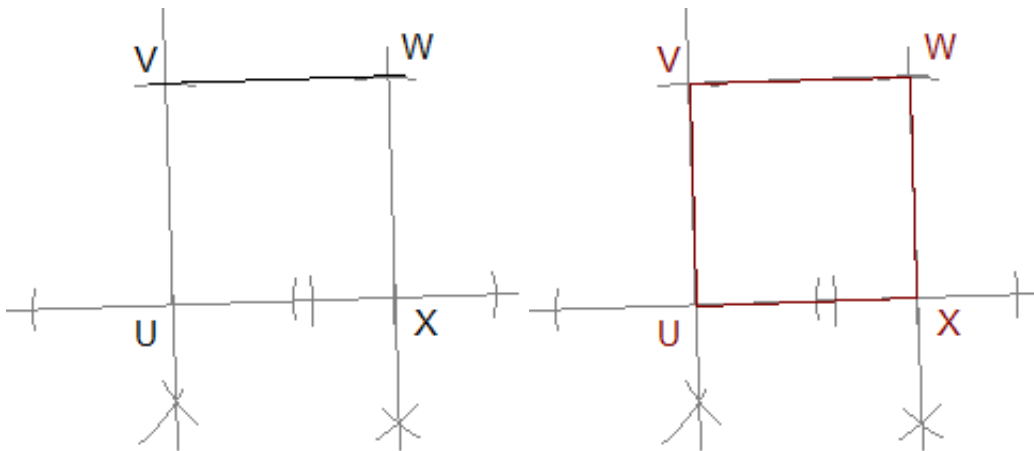


Now, you will need to remeasure the length of each side and measure off this distance

between the vertex and the newly constructed perpendicular line.

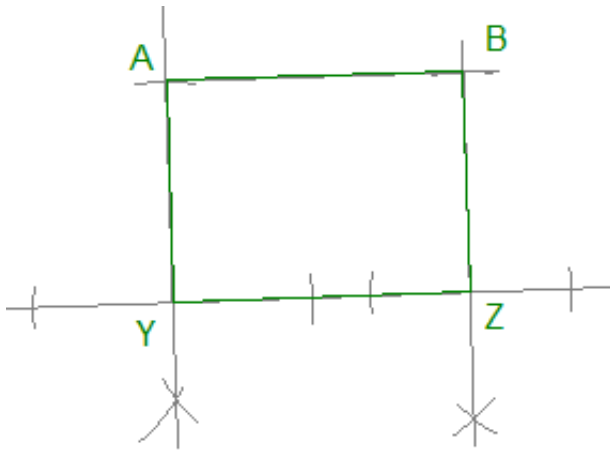


Finally, connect the remaining two vertices. Label all vertices. Figure UVWX is a square.



If you were duplicating a **square**, the only variation you would need to do would be to measure the length of a side and use that length to mark off your vertices once the initial perpendicular lines were created.

A **rectangle** is constructed in the same way, but use two different lengths for the sides. Figure YABZ is a rectangle constructed by measuring the 'vertical' length and selecting an arbitrary length for the 'horizontal' side.



If you were to duplicate a rectangle, you would need to correctly measure each of the sides.

Ready to do this on your own?



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